

CLAIMS

1. A liquid crystal shutter  
comprising cells for exposure formed as a plurality of  
shutter rows on a transparent substrate and built in an  
exposure device to control the exposure of a  
photosensitive medium,

characterized in that said liquid crystal  
shutter comprises two transparent substrates including  
the liquid crystal,

each of said shutter rows is configured of  
two cell rows with a plurality of cells arranged in  
staggered fashion, and

a partitioning wall for defining the  
interval between said two transparent substrates is  
formed at least in one position between a plurality of  
said shutter rows.

2. A liquid crystal shutter for the exposure  
device as set forth in claim 1, comprising a transparent  
common electrode, a plurality of transparent cell  
electrodes formed on two transparent substrates,  
respectively, sandwiching the liquid crystal, and a  
plurality of lead electrodes for leading out said  
transparent cell electrodes.

3. A liquid crystal shutter for the exposure  
device as set forth in claim 1,

wherein said plurality of shutter rows is  
three shutter rows corresponding to red, green and blue,  
respectively,

wherein said lead electrodes connected to  
said transparent cell electrodes of said two shutter rows  
are led out to the two ends of each of said transparent  
substrates, and

wherein said lead electrodes connected to  
said transparent cell electrodes of the central shutter  
row are divided into those led to one end of said  
transparent substrate and those led to the other end  
thereof.

4. A liquid crystal shutter for the exposure device as set forth in claim 3, wherein said lead electrodes connected to said transparent cell electrodes

of said central shutter row are each led out through the space between said transparent cell electrodes of said two shutter rows arranged on both sides of said central shutter row.

5           5.                   A liquid crystal shutter for the exposure device as set forth in claim 1, wherein said plurality of cells being arranged in such a manner that the relation  $Q = NP$  holds, where  $Q$  is the pitch of said shutter rows,  $P$  is the pitch of said two cell rows, and  $N$  is a positive integer larger than 2.

10           6.                   A liquid crystal shutter for the exposure device as set forth in claim 5, wherein the pitch  $Q$  of said shutter rows is set longer than the distance equal to the sum of the width of said partitioning wall and  
15           twice the width of the fringe formed by said partitioning wall.

7.           A liquid crystal shutter for the exposure device as set forth in claim 6, wherein the width of said fringe is not less than 2 mm.

20           8.                   A liquid crystal shutter for the exposure device as set forth in claim 1, wherein said plurality of cells is so configured that said liquid crystal is held between a transparent common substrate formed with a transparent cell electrode and a lead electrode for  
25           leading out said transparent cell electrode and a plurality of transparent opposed substrates formed with a transparent common electrode corresponding to each of said shutter rows.

30           9.                   A liquid crystal shutter for the exposure device as set forth in claim 8,

                  wherein said plurality of shutter rows is three shutter rows corresponding to red, green and blue, respectively, and

                  wherein said plurality of the transparent  
35           opposed substrates formed with said transparent common electrode are three transparent opposed substrates corresponding to said three shutter rows, respectively.

10. A liquid crystal shutter for the exposure

device as set forth in claim 8,

wherein said plurality of shutter rows is three shutter rows corresponding to red, green and blue, respectively, and

5 wherein said plurality of the transparent opposed substrates formed with said transparent common electrode include two transparent opposed substrates, one corresponding to two adjoining ones of said three shutter rows and the other corresponding to the other one shutter  
10 row.

11. A liquid crystal shutter for the exposure device as set forth in any one of claims 8 to 10,

wherein said liquid crystal held between said plurality of the transparent opposed substrates and  
15 said transparent common substrate is sealed by a seal member for each of said transparent opposed substrates.

12. A liquid crystal shutter for the exposure device as set forth in claim 5, wherein said value N is  
46.

20 13. A liquid crystal shutter for the exposure device as set forth in claim 1, wherein a plurality of said shutter rows is three shutter rows corresponding to red, green and blue, respectively, and a partitioning wall is formed between each adjoining ones of the shutter  
25 rows.

14. A liquid crystal shutter for the exposure device as set forth in claim 1, wherein a partitioning wall is also formed between the seal member on the outer periphery of said shutter and a plurality of said cell  
30 rows.

15. A liquid crystal shutter for the exposure device as set forth in claim 14, wherein a plurality of said partitioning walls are arranged in a substantially equally spaced relationship with each other.

35 16. A liquid crystal shutter for the exposure device as set forth in claim 1, wherein said partitioning wall has at least a notch for securing a smooth flow of

the liquid crystal when the liquid crystal is injected.